CLAIMS

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1. A method of making measurements of an object on a machine using an optical measuring apparatus which includes a light source which generates a beam of light which is incident upon a detector, the method comprising the steps of:

generating a detection signal within the detector each time the beam is interrupted;

evaluating the frequency and/or duration of the occurrences of said detection signals;

emitting an output signal from the detector only if a further detection signal is present within the detector in a specified time interval from the generation of an earlier detection signal.

2. A method according to claim 1 and comprising the further steps of:

rotating the object;

generating a first time interval (t_1) which is dependent on the speed of rotation of the object; and

generating the specified time interval as a time interval (t_2) which is shorter than (t_1) and commences at the end of the interval (t_1).

3. A method according to claim 2 wherein the object is a tool on a machine tool and the tool is rotated at a known specific speed and the time interval (t_1) is substantially equal to the time taken for one revolution of the tool.

4. A method according to claim 3 wherein the apparatus further includes a clock, the method comprising the further steps of:

rotating the tool;

causing the clock to initiate the emission of a

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series of pulses of short duration which are synchronised with the speed of rotation of the tool, the first pulse being emitted to coincide with a detection signal being generated in the detector;

emitting an output signal from the detector only if a detection signal is also present within the detector during the existence of a clock pulse;

stopping the clock if no such detection signal is present in the detector.

5. A method according to claim 4 wherein a clock pulse is produced for each revolution of the tool, and an output signal is emitted from the detector only if a detection signal is present with the detector during the next pulse emitted by the clock following said first pulse.

6. A method according to claim 4 wherein the apparatus includes two clocks the method comprising the further steps of:

causing a first clock to initiate the emission of a first series of said pulses when a detection signal is generated within the detector;

causing the second clock to initiate the emission of a second series of said pulses commencing with the generation of a further detection signal within the detector in the interval between two successive pulses of the first clock; and

emitting an output signal from the detector if a detection signal is also present within the detector during the existence of the next pulse in the second series if the detector has not emitted an output signal based on the first series of pulses.

7. A method according to claim 6 wherein the apparatus includes additional clocks, the method

comprising the steps of sequentially initiating the emission of respective series of said pulses if a detection signal is generated within the detector and all of the previously started clocks are running.

8. A method according to claim 6 wherein the apparatus includes additional clocks, the method comprising the steps of setting the clocks to produce respective series' of pulses at different frequencies set to coincide with different speeds of rotation of the tool, and causing the initiation of the emission of a said series of pulses appropriate to the speed of rotation of the tool.

9. Optical apparatus for measuring objects on machines comprising a light source for generating a light beam and a detector for receiving said beam and which generates a signal when the beam is interrupted, wherein the detector includes a detection circuit which generates a signal each time the beam is interrupted, and signal processing means for evaluating the frequency and/or duration of the occurrences of said signals and which emits an output signal only if a second signal is generated by the detection circuit within a specified time interval after the occurrence of said signal.

10. Optical measuring apparatus according to claim 9 and wherein the object is a tool on a machine tool.